

ABSTRACT

In a welding machine and welding method, for welding cylinder members together about an outside diameter, which prevents the cylinder members from being deformed and corrects the deformation of a portion to be welded, a laser beam, generated by a laser generator, is dispersed in two directions by a spectroscope. The laser beams focus on an outer cylinder member using two optical heads, respectively, in a plane perpendicular to a center axis of outer cylinder member. The optical heads are separated from each other by approximately 90 degrees in the plane. The outer and inner cylinder members are welded to each other in the circular direction using laser beams. Therefore, directions, in which the cylinder members are deformed due to the laser beams, are perpendicular to each other creating uniform radial deformation.